

## CONTENTS

### PROCEEDINGS

	PAGE
Summary of Proceedings of the Fifty-seventh Annual Meeting.....	1
Annual Address by the President—L. C. Beard, Jr. ....	33
Annual Report of the Board of Directors.....	37
Appendix I. Report of the Auditors for the Fiscal Year January 1 to December 11, 1953.....	63
Appendix II. Report of Administrative Committee on Standards.....	76
Appendix III. Report of Administrative Committee on Research.....	83
Appendix IV. Report of Administrative Committee on Papers and Publica- tions.....	85
Appendix V. Report of Administrative Committee on District Activities.....	89

### COMMITTEE REPORTS

#### Ferrous Metals

Report of Committee A-1 on Steel.....	91
Appendix. Recommendations Affecting Standards on Steel.....	97
Report of Committee A-3 on Cast Iron.....	104
Report of Committee A-5 on Corrosion of Iron and Steel.....	106
Report of Subcommittee XIV on Inspection of Black and Galvanized Sheets.....	110
Report of Subcommittee XV on Atmospheric Exposure Tests of Wire and Wire Products.....	123
Report of Committee A-6 on Magnetic Properties.....	128
Report of Committee A-7 on Malleable Iron Castings.....	129
Report of Committee A-10 on Iron-Chromium, Iron-Chromium-Nickel, and Re- lated Alloys.....	130

#### Non-Ferrous Metals

Report of Committee B-1 on Wires for Electrical Conductors.....	138
Report of Committee B-2 on Non-Ferrous Metals and Alloys.....	145
Report of Committee B-3 on Corrosion of Non-Ferrous Metals and Alloys.....	147
Report of Subcommittee VIII on Galvanic and Electrolytic Corrosion. Spool- and-Wire Couple Tests—Part II of a Three-Part Program.....	150
Report of Committee B-4 on Electrical Heating, Electrical Resistance, and Electronic Applications.....	160
Report of Committee B-5 on Copper and Copper Alloys, Cast and Wrought.....	163
Appendix I. Recommendations Affecting Standards for Copper and Copper Alloys, Cast and Wrought.....	167
Appendix II. Report on Determination of Grain Size.....	173
Appendix III. The Mechanical Properties of Some Nickel Silver Alloy Strips— G. R. Gohn, J. P. Guerard, and G. J. Herbert.....	229
Report of Committee B-6 on Die-Cast Metals and Alloys.....	257
Report of Committee B-7 on Light Metals and Alloys, Cast and Wrought.....	260
Appendix. Recommendations Affecting Standards for Light Metals and Alloys, Cast and Wrought.....	263
Appendix. Atmospheric Exposure of Aluminum and Magnesium Sand and Permanent Mold Castings—L. H. Adam and Marie Dougherty.....	270
Report of Committee B-8 on Electrodeposited Metallic Coatings.....	295
Appendix. Report of Section B on Porosity Tests of Subcommittee III on Con- formance Tests.....	299
Report of Committee B-9 on Metal Powders and Metal Powder Products.....	311
Report of Advisory Committee on Corrosion.....	314

<sup>1</sup> Report of progress not published but submitted to Board of Directors.

## CONTENTS

	PAGE
Report of Joint Committee on the Effect of Temperature on the Properties of Metals.....	321
Appendix. Elevated-Temperature Fatigue Properties of Several High-Temperature Sheet Materials—D. C. Goldberg and J. J. Lombardo.....	325
<i>Subcommittee Report on New Specifications for Bare Stainless Steel Welding Rods and Electrodes—Subcommittee IV on High-Alloy Steel Filler Metal of AWS-ASTM Joint Committee on Filler Metal (see ASTM BULLETIN No. 198, May 1954, p. 77 (TP123))</i>	
 <b>Cementitious, Ceramic, Concrete, and Masonry Materials</b>	
Report of Committee C-1 on Cement.....	335
<i>Mechanical Mixing in Compressive Strength Test of Cement Mortar Proposed (see ASTM BULLETIN No. 196, February 1954, p. 24)</i>	
Report of Committee C-2 on Magnesium Oxychloride and Magnesium Oxysulfate Cements.....	338
Report of Committee C-3 on Chemical-Resistant Mortars.....	340
Report of Committee C-4 on Clay Pipe.....	342
Report of Committee C-7 on Lime <sup>1</sup>	
Report of Committee C-8 on Refractories.....	344
Report of Committee C-9 on Concrete and Concrete Aggregates.....	347
Appendix. Final Report on Cooperative Tests on Proposed Tentative Method of Test for Potential Volume Change of Cement-Aggregate Combinations and Proposed Tentative Method of Test for Potential Abnormal Expansion of Cement-Aggregate Combinations.....	356
Report of Committee C-11 on Gypsum.....	374
Report of Committee C-12 on Mortars for Unit Masonry.....	379
Report of Committee C-13 on Concrete Pipe.....	381
Report of Committee C-14 on Glass and Glass Products.....	385
Report of Committee C-15 on Manufactured Masonry Units.....	387
Report of Committee C-16 on Thermal Insulating Materials.....	389
Report of Committee C-17 on Asbestos-Cement Products <sup>1</sup>	
Report of Committee C-20 on Acoustical Materials <sup>1</sup>	
Report of Committee C-21 on Ceramic Whiteware.....	392
Report of Committee C-22 on Porcelain Enamel.....	394
 <b>Miscellaneous Materials</b>	
Report of Committee D-1 on Paint, Varnish, Lacquer, and Related Products.....	396
<i>Proposed Specifications for Raw Safflower Oil (published in the January, 1955, Compilation of ASTM Standards on Paint, Varnish, Lacquer, and Related Products)</i>	
Report of Committee D-2 on Petroleum Products and Lubricants.....	403
Appendix I. Proposed Revision of Tentative Method of Measuring Temperature of Petroleum and Petroleum Products (D 1086 - 52 T).....	411
Appendix II. Information Concerning the Tentative Method of Test for Reduced Pressure, Distillation of Petroleum Products (D 1160 - 52 T).....	416
<i>Proposed Method of Test for Filterability of Jet Fuels (published in the November, 1954, Compilation of ASTM Standards on Petroleum Products and Lubricants)</i>	
<i>Proposed Method of Test for Mercaptan Sulfur in Jet Fuels (Potentiometric Titration Method) (published in the November, 1954, Compilation of ASTM Standards on Petroleum Products and Lubricants)</i>	
<i>Proposed Method of Test for Individual Hydrocarbons in a C<sub>4</sub> Fraction by Infrared Spectrophotometric Method (published in the November, 1954, Compilation of ASTM Standards on Petroleum Products and Lubricants)</i>	
<i>Proposed Method of Test for Emulsion Characteristics of Steam-Turbine Oils (published in the November, 1954, Compilation of ASTM Standards on Petroleum Products and Lubricants)</i>	
Report of Committee D-3 on Gaseous Fuels.....	418
Report of Committee D-4 on Road and Paving Materials.....	420
Report of Committee D-5 on Coal and Coke.....	427
Report of Committee D-6 on Paper and Paper Products.....	434
Report of Committee D-7 on Wood.....	437
Report of Committee D-8 on Bituminous Waterproofing and Roofing Materials.....	440
Report of Committee D-9 on Electrical Insulating Materials.....	444

## CONTENTS

vii

	PAGE
<b>Appendix. Errors Occurring in the Measurement of Dielectric Constant—R. F. Field</b> .....	456
<b>Proposed Methods of Test for Dielectric Constant and Dissipation Factor of Aviation Fuels (published in the February, 1955, Compilation of ASTM Standards on Electrical Insulating Materials)</b> .....	456
Report of Committee D-10 on Shipping Containers.....	479
Report of Committee D-11 on Rubber and Rubber-Like Materials.....	481
Report of Committee D-12 on Soaps and Other Detergents.....	490
Report of Committee D-13 on Textile Materials.....	493
<b>Appendix. Recommendations Affecting Standards for Textile Materials</b> .....	496
<b>Proposed Method of Test for Predicting Differential Dyeing Behavior of Cotton (published in the October, 1954, Compilation of ASTM Standards on Textile Materials)</b> .....	503
Report of Committee D-14 on Adhesives.....	503
<b>Proposed Method of Test for Bonded Specimens of Adhesives as Cantilever Beams Under Repeated Constant Deflection (published in the September, 1954, Compilation of ASTM Standards on Adhesives)</b> .....	506
<b>Proposed Method of Test for Susceptibility of Dry Adhesive Films to Attack by Roaches (published in the September, 1954, Compilation of ASTM Standards on Adhesives)</b> .....	508
<b>Proposed Method of Test for Susceptibility of Dry Adhesive Films to Attack by Laboratory Rats (published in the September, 1954, Compilation of ASTM Standards on Adhesives)</b> .....	510
Report of Committee D-15 on Engine Antifreezes.....	513
Report of Committee D-16 on Industrial Aromatic Hydrocarbons and Related Materials.....	517
Appendix. Proposed Method of Test for Bromine Index of Aromatic Hydrocarbons by Potentiometric Titration.....	520
Report of Committee D-17 on Naval Stores.....	527
Report of Committee D-18 on Soils for Engineering Purposes.....	529
Report of Committee D-19 on Industrial Water.....	534
<b>Appendix. Supporting Data Relating to New and Revised Methods of Testing Industrial Water and Industrial Waste Water</b> .....	534
<b>Abbreviated Methods for the Analysis of Water Supplies in the Evaporative Industry (published in the September, 1954, printing of the Manual on Industrial Water)</b> .....	538
<b>Proposed Method of Test for Evaluating Acute Toxicity of Industrial Wastes to Fresh-Water Fishes (published in the 1954 Supplement to Book of ASTM Standards, Part 7, and in the September, 1954, printing of the Manual on Industrial Water)</b> .....	540
Report of Committee D-20 on Plastics.....	540
<b>Appendix. Recommendations Affecting Standards on Plastics</b> .....	540
Report of Committee D-21 on Wax Polishes and Related Materials.....	540
<b>Proposed Method of Test for Measuring the Static Coefficient of Friction of Waxed Floor Surfaces (see ASTM BULLETIN No. 196, February 1954, p. 20)</b> .....	542
<b>Proposed Method of Test for Measuring the Dynamic Coefficient of Friction of Waxed Floor Surfaces (see ASTM BULLETIN No. 196, February 1954, p. 21)</b> .....	542
<b>Suggested Method of Test for Concentrating Additives of Waxes (see ASTM BULLETIN No. 197, April 1954, p. 38)</b> .....	542
<b>Suggested Method of Test for the Index of Refraction of Carnauba Wax and Other High-Melting-Point Natural and Synthetic Waxes (see ASTM BULLETIN No. 197, April 1954, p. 39)</b> .....	542
Report of Committee D-22 on Methods of Atmospheric Sampling and Analysis.....	542
Report of Committee D-23 on Cellulose and Cellulose Derivatives.....	542
<b>Miscellaneous Subjects</b>	
Report of Committee E-1 on Methods of Testing.....	542
<b>Appendix. Proposed Specifications for Apparatus for Determination of Water by Distillation</b> .....	554
Report of Committee E-2 on Emission Spectroscopy.....	559
Report of Committee E-3 on Chemical Analysis of Metals.....	562
Report of Committee E-4 on Metallography.....	566
<b>Appendix. Electron Microstructure of Tempered Bainite and Tempered Martensite in Steel</b> .....	568
<b>Discussion</b> .....	588

## CONTENTS

	PAGE
Report of Committee E-5 on Fire Tests of Materials and Constructions.....	591
Report of Committee E-6 on Methods of Testing Building Constructions.....	594
Report of Committee E-7 on Non-Destructive Testing <sup>1</sup> .....	596
Report of Committee E-9 on Fatigue.....	598
Report of Committee E-10 on Radioactive Isotopes.....	599
Report of Committee E-11 on Quality Control of Materials.....	599
Report of Committee E-13 on Absorption Spectroscopy.....	600
Report of Committee E-14 on Mass Spectrometry <sup>1</sup> .....	600
 TECHNICAL PAPERS	
<b>Edgar Marburg Lecture</b>	
Interpretation of Engineering Data: Some Observations—Harold F. Dodge.....	603
<b>Gillett Memorial Lecture</b>	
Fatigue of Aluminum—R. L. Templin.....	641
<b>Symposium on Effect of Cyclic Heating and Stressing on Metals at Elevated Temperatures</b>	
Summary of Proceedings of the Symposium on Effect of Cyclic Heating and Stressing on Metals at Elevated Temperatures ( <i>ASTM Special Technical Publication No. 165</i> ).....	700
<b>Metals</b>	
Softening of Certain Cold-Worked Metals Under the Action of Fatigue Loads—N. H. Polakowski and A. Palchoudhuri.....	701
Discussion.....	713
Metallographic Aspects of Fatigue Behavior of Aluminum—M. S. Hunter and W. G. Fricke, Jr.....	717
Discussion.....	733
An Experimental Study of the Influence of Fluctuating Stress Amplitude on Fatigue Life of 75S-T6 Aluminum—H. T. Corten, G. M. Sinclair, and T. J. Dolan.....	737
Discussion.....	753
Fatigue Strength of 14S-T4 Aluminum Alloy Subjected to Biaxial Stresses—R. W. Bundy and Joseph Marin.....	755
Discussion.....	767
Dynamic Creep and Rupture Properties of an Aluminum Alloy Under Axial Static and Fatigue Stress—F. W. DeMoney and B. J. Lazan.....	769
Discussion.....	783
The Influence of Test Temperature and Grain Size on the Fatigue of Notch Sensitivity of Refractaloy-26—P. R. Toolin.....	786
Discussion.....	797
Effect of Range of Stress and Prestrain on the Fatigue Properties of Titanium—J. P. Romualdi and E. D'Appolonia.....	798
Discussion.....	816
A Failure Criterion for Multi-Axial Fatigue Stresses—F. B. Stulen and H. N. Cummings.....	822
Experiments in Fatigue Under Ranges of Stress in Torsion and Axial Load from Tension to Extreme Compression—William N. Findley.....	836
Discussion.....	847
A Simplified Statistical Procedure for Obtaining Design-Level Fatigue Curves—E. H. Schutte.....	853
Discussion.....	867
An Appraisal of the Prot Method of Fatigue Testing—H. T. Corten, T. Dimoff, and T. J. Dolan.....	875
Discussion.....	895
Investigations Concerning the Fatigue of Aircraft Structures—R. A. Carl and T. J. Wegeng.....	903
Discussion.....	926
<i>On Fatigue Tests Under Progressive Stress, a Theory of Fatigue of Metals and a Quick Method for Determining the Fatigue Limit—N. Enomoto (to be published in the 1955 Proceedings)</i> .....	929
Poisson Effect in the Charpy Test—Carl E. Harthower.....	937
Discussion.....	

## CONTENTS

ix

	PAGE
Effect of Specimen Size on Notched Bar Impact Properties of Quenched-and-Tempered Steels—Harry Schwartzbart and J. P. Sheehan.....	939
Discussion.....	952
Notch-Bar Tests of High-Strength Steel—R. Raring and J. Rinebolt.....	956
Discussion.....	963
The Strength of Carbon Steels for Elevated-Temperature Applications—R. F. Miller.....	964
Discussion.....	987
Size Effect in the Tension Test of Mild Steel—Cedric W. Richards.....	995
Discussion.....	1000
Effect of Microstructure on the Elevated-Temperature Strength of Alloy Steel—J. J. Heger, J. M. Hodge, and P. W. Marshall.....	1003
Short-Time Tension and Creep-Rupture Properties of Hardened 1040, 4340, and Ni-Cr-Mo-V Steels Up to 1000 F—G. V. Smith and W. B. Scens.....	1028
The Creep Characteristics of Copper-Nickel Alloys at 300, 400, and 500 F—J. H. Port and A. I. Blank.....	1038
Creep Properties of Annealed Unalloyed Zirconium—M. J. Manjoine and W. L. Mudge, Jr.....	1050
Tensile and Creep Properties at Elevated Temperatures of Some Magnesium-Base Wrought Alloys—H. Baker.....	1068
Tensile and Creep Properties at Elevated Temperatures of Some Magnesium-Base Sand-Casting Alloys—K. E. Nelson.....	1081
<i>Thermal Shock Testing Procedure—A. W. F. Green, K. Lampson, and T. Tsareff (to be published in the 1955 Proceedings)</i>	
<i>Elevated Temperature Fatigue Properties of Several High-Temperature Sheet Materials—D. C. Goldberg and J. J. Lombardo (appended to the Report of Joint Committee on the Effect of Temperature on the Properties of Metals, p. 325)</i>	
Statistical Evaluation of the Creep-Rupture Properties of Four Heat-Resistant Alloys in Sheet Form—A. I. Rush and J. W. Freeman.....	1098
Discussion.....	1123
<i>The Mechanical Properties of Some Nickel Silver Alloy Strips—G. R. Gohn, J. P. Guerard and G. J. Herbert (appended to the B-5 Report, p. 229)</i>	
Atmospheric Exposure of Aluminum and Magnesium Sand and Permanent Mold Castings—L. H. Adam (appended to the B-7 Report, p. 270)	
Electron Microstructure of Tempered Bainite and Tempered Martensite in Steel—W. L. Grubé (appended to the E-4 Report, p. 568, Discussion, p. 588).	
Field Testing Techniques Using the Bonded-Wire Strain Gage—Francis G. Tatnall (see ASTM BULLETIN No. 199, July 1954, p. 62 (TP 140))	
Electrolytic Etching in Oxalic Acid Used to Screen Cast CF-8 and CF-8M Stainless Steels from the 240-Hr Nitric Acid Test—F. H. Beck, N. D. Greene, Jr., and M. G. Fontana (see ASTM BULLETIN No. 195, January 1954, p. 69 (TP 30))	
Results of Cooperative Testing Program for the Evaluation of the Oxalic Acid Etching Test—M. A. Streicher (see ASTM BULLETIN No. 195, January, 1954, p. 63 (TP 23))	
Screening Cast Stainless Steels by Electrolytic Etching in Oxalic Acid—G. W. Jackson and W. A. Luce (see ASTM BULLETIN No. 195, January, 1954, p. 71 (TP 33))	
A Fatigue Testing Machine for Range of Stress—James P. Romualdi, Chiao-Lin Chang, and Charles F. Peck (see ASTM BULLETIN No. 200, September, 1954, p. 39 (TP 165))	
Treatment of Tension Test Specimens for Fixing in Testing Machine—H. Krenkel (see ASTM BULLETIN No. 200, September, 1954, p. 44 (TP 170))	
Analysis for Molybdenum-Bearing Austenitic Stainless Steel Proposed for Experimental Use in Chemical and Process Industries—W. B. Myers (see ASTM BULLETIN No. 201, October, 1954, p. 28)	
Tension Specimens Made by Photengraving Techniques—Ralph L. Dowdell and William B. F. Mackay (see ASTM BULLETIN No. 201, October, 1954, p. 65 (TP 227))	
<b>Cementitious, Concrete, and Concrete Aggregates</b>	
Investigations Relating to the Use of Fly Ash as a Pozzolan and as an Admixture in Portland-Cement Concrete—L. John Minnick.....	1129
Discussion.....	1159
Some Observations on the Mechanics of Alkali-Aggregate Reaction—L. S. Brown (see ASTM BULLETIN No. 205, April, 1955, p. 40 (TP 66))	
A Rapid Accelerated Test for Cement-Aggregate Reaction—C. H. Scholer and G. M. Smith.....	1165

## CONTENTS

	PAGE
Statistical Relation Between Cylinder, Modified Cube, and Beam Strength of Plain Concrete—Clyde E. Kesler.....	1178
Discussion.....	1186
Petrographic Examination of Concrete Aggregate—Richard Mielenz.....	1188
<i>Some Volume Changes in Mortar and Concrete—F. O. Anderegg and J. A. Anderegg (to be published in the 1955 ASTM BULLETIN)</i>	
Masonry Cracking and Damage Caused by Moisture Expansion of Structural Clay Tile—J. W. McBurney.....	1219
Discussion.....	1239
Machine to Apply Repeated Loads to Large Flexural Members—A. Roesli, A. C. Loeuer, and W. J. Enay (see ASTM BULLETIN No. 196, February, 1954, p. 50 (TP 58))	
A Study of Some Operations Involved in Cement Analysis—Leonard Bean and Ethel J. Hackney (see ASTM BULLETIN No. 197, April, 1954, p. 43 (TP 71))	
Mechanical Wet Sieve Testing Method—J. J. Kobiske and H. J. Rodenberger (see ASTM BULLETIN No. 200, September, 1954, p. 46 (TP 172))	
Developing a Test Method for Efflorescence of Masonry Mortar—P. L. Rogers (see ASTM BULLETIN No. 200, September, 1954, p. 64 (TP 190))	
A Note on the Oxyquinolale Determination of Magnesium Oxide in Cement—Leonard Bean and Nancy J. Tucker (see ASTM BULLETIN No. 201, October, 1954, p. 62 (TP 224))	
Autogenesis—Robert S. Rowe (see ASTM BULLETIN No. 201, October, 1954, p. 63 (TP 225))	
<b>Session on Significance of Tests on Concrete</b>	
Summary of Proceedings of the Session on Significance of Tests on Concrete.....	1242
<b>Supplement to Symposium on Lateral Load Tests on Piles</b>	
Summary of Supplement to Symposium on Lateral Load Tests on Piles (ASTM Special Technical Publication No. 154-A).....	1243
<b>Symposium on Permeability of Soils</b>	
Summary of Proceedings of the Symposium on Permeability of Soils (ASTM Special Technical Publication No. 163).....	1244
<b>Symposium on Methods of Testing Building Constructions</b>	
Summary of Proceedings of the Symposium on Methods of Testing Building Constructions (ASTM Special Technical Publication No. 166).....	1245
<b>Miscellaneous</b>	
An Evaluation of the Specific Gravity of Aggregates for Use in Bituminous Mixtures—W. C. Ricketts, John C. Sprague, D. D. Tabb, and J. L. McRae.....	1246
Discussion.....	1256
A Simple Fractional Distillation Test for Creosote—H. L. Stasse.....	1258
Study and Development of Methods for Determining In-Place Density of Cohesionless Soils—Donald F. Griffin.....	1270
Investigation of the Effect of Transient Loading on the Strength and Deformation Characteristics of Saturated Sands—H. B. Seed and R. Lundgren.....	1288
Measuring Viscosity of Thermosetting Resins by Parallel Plate Plastometry—Donald I. Marshall (see ASTM BULLETIN No. 204, February, 1955, p. 40 (TP 42))	
Effect of Crystallinity and Crazing, Aging, and Residual Stress on Creep of Monochlorotrifluoroethylene, Canvas Laminate, and Polyvinyl Chloride, Respectively—William N. Findley.....	1307
Creep-Time Relations for Nylon in Tension, Compression, Bending, and Torsion—Joseph Marin, A. C. Webber, and G. Weissmann.....	1313
Discussion.....	1329
Time-Temperature Relationship for Rupture Stresses in Reinforced Plastics—S. Goldfein.....	1344
Discussion.....	1352
An Inexpensive Constant-Load Testing Machine—M. E. Clark and O. M. Sidebottom (see ASTM BULLETIN No. 203, January, 1955, p. 69 (TP 29))	
Production Testing of Bonded Materials with Ultrasonics—A Survey of Theory and Application—G. B. Baumeister (see ASTM BULLETIN No. 204, February, 1955, p. 50 (TP 52))	

## CONTENTS

xi

	PAGE
A New Triaxial Stress Testing Machine for Determining Plastic Stress-Strain Relations—H. A. B. Wiseman and Joseph Marin.....	1365
Discussion.....	1382
Errors Occurring in the Measurement of Dielectric Constant—Robert F. Field (appended to the D-9 Report, p. 456) (abstracted in ASTM BULLETIN No. 201, October, 1954, p. 30)	
An Apparatus for Making ASTM-Type Vacuum Distillations—H. S. Meyers and S. T. Kiguchi (see ASTM BULLETIN No. 195, January, 1954, p. 39 (TP 1))	
A New Impact Machine for Plastics and Insulating Materials—Robert Burns (see ASTM BULLETIN No. 195, January, 1954, p. 61 (TP 23))	
The Effect of Temperature on the Air Aging of Rubber Vulcanizates—A. E. Juve and M. G. Schoch, Jr. (see ASTM BULLETIN No. 195, January, 1954, p. 54 (TP 16))	
Note on the Adjustment of Mooney Viscometer Die Closure—George E. Decker (see ASTM BULLETIN No. 195, January, 1954, p. 51 (TP 13))	
Temperature Measurements in the Mooney Viscometer—George E. Decker and Robert D. Stiebler (see ASTM BULLETIN No. 195, January, 1954, p. 45 (TP 7))	
Improved Scale System for Stiffness Testing Machine—Harry LaTour and R. S. Sutton (see ASTM BULLETIN No. 196, February, 1954, p. 40 (TP 48))	
A Four Piece Steamer—Marvin Antelman (see ASTM BULLETIN No. 197, April, 1954, p. 66 (TP 94))	
The Evaluation of Chemical De-icing Solutions—Carl Berger (see ASTM BULLETIN No. 197, April, 1954, p. 67 (TP 95))	
Development of a Hiding Power Test Method—Report of Progress—M. H. Switzer (see ASTM BULLETIN No. 197, April, 1954, p. 60 (TP 88))	
Sampling and Paintbrushes—M. J. Snyder, L. L. Lortscher, and G. H. Beatty (see ASTM BULLETIN No. 197, April, 1954, p. 49 (TP 77))	
Impact Tester for Textiles—J. B. Dickson and L. A. Davieau (see ASTM BULLETIN No. 198, May, 1954, p. 85 (TP 131))	
Something Has Been Added—L. C. Beard (see ASTM BULLETIN No. 198, May, 1954, p. 51 (TP 97))	
A Study of Stiffness Testing of Elastomers at Low Temperatures—F. S. Conant (see ASTM BULLETIN No. 199, July, 1954, p. 67 (TP 145))	
A Study of Hardness Testing of Elastomers at Low Temperatures—B. G. Labbe (see ASTM BULLETIN No. 199, July, 1954, p. 73 (TP 151))	
Analysis of Stresses Induced by a Sandwich Proof Tester—W. S. Erickson (see ASTM BULLETIN No. 199, July, 1954, p. 80 (TP 158))	
Becker Value of Manila Rope by Photoelectric Reflectometry—Sanford B. Newman, Harry K. Hammond III, and Helen F. Riddell (see ASTM BULLETIN No. 199, July, 1954, p. 84 (TP 162))	
Observations on the Application of Statistical Techniques to ASTM Standards—Charles A. Bickling (see ASTM BULLETIN No. 200, September, 1954, p. 48 (TP 174))	
An Instrument for Measuring the Chip Resistance of Paints—E. P. Brightwell (see ASTM BULLETIN No. 200, September, 1954, p. 53 (TP 179))	
A Method of Measuring the Gehman Stiffness of Rubber Utilizing a Methanol Liquid Bath—James J. Sinclair and C. B. Griffis (see ASTM BULLETIN No. 200, September, 1954, p. 56 (TP 182))	
Radiographic Properties of X-rays in the Two-to Six Million-Volt Range—C. H. Goldie, K. A. Wright, J. H. Anson, R. W. Cloud, and J. G. Trump (see ASTM BULLETIN No. 201, October, 1954, p. 49 (TP 211))	
Relation Between Net Heat of Combustion and Aniline Gravity Product of Aircraft Fuels—Ralph S. Jessup and Joseph A. Cogliano (see ASTM BULLETIN No. 201, October, 1954, p. 55 (TP 217))	
The Responsibility of the Engineer to His Profession—W. H. Larkin (see ASTM BULLETIN No. 202, December, 1954, p. 40))	
Relation Between Compressive Strength and Rate of Deformation in Testing Swedish Fir—Bengt Noren (see ASTM BULLETIN No. 202, December, 1954, p. 43 (TP 229))	
Plastic Testing at High and Low Temperatures—C. H. Klute and L. B. McKee (see ASTM BULLETIN No. 202, December, 1954, p. 50 (TP 236))	
Need for a Standardized Procedure for Measuring Reflectance of Detergency Fabrics—R. B. Diaz, H. Paitchel and J. A. Woodhead (see ASTM BULLETIN No. 202, December, 1954, p. 56 (TP 242))	
Beaded Traffic Line Paint—S. Werthan (see ASTM BULLETIN No. 202, December, 1954, p. 59 (TP 245))	

## CONTENTS

	PAGE
<b>Symposium on Gum and Storage Stability of Motor Gasoline</b>	
<i>The Invalid Induction Period—William R. Power (see ASTM BULLETIN No. 200 September, 1954, p. 58 (TP 184))</i>	
<i>Correlation of Induction Tests with Motor Fuel Stability—R. W. Donahue (see ASTM BULLETIN No. 200, September, 1954, p. 61 (TP 187))</i>	
<b>Symposium on Engine Lubrication</b>	
<i>Engine Wear as Affected by Lubricant Composition—H. G. Mougey (see ASTM BULLETIN No. 198, May, 1954, p. 57 (TP 103))</i>	
<i>Lubricating Oil Requirements of the Modern Automotive Engine—J. P. Hamer, T. S. Tuwiler, and C. A. Wiesel (see ASTM BULLETIN No. 198, May, 1954, p. 70 (TP 110); Discussion, p. 76 (TP 122))</i>	
<i>Wear in Bearings—Charles H. Junge (see ASTM BULLETIN No. 198, May, 1954, p. 64 (TP 110))</i>	
<b>Symposium on Odor</b>	
<i>Summary of Proceedings of the Symposium on Odor (ASTM Special Technical Publication No. 164)</i>	1383
<b>Symposium on Coal Sampling</b>	
<i>Summary of Proceedings of the Symposium on Coal Sampling (ASTM Special Technical Publication No. 162)</i>	1384
<b>Symposium on Temperature Stability of Electrical Insulating Materials</b>	
<i>Summary of Proceedings of the Symposium on Temperature Stability of Electrical Insulating Materials (ASTM Special Technical Publication No. 161)</i>	1385
<b>Symposium on Diesel Fuels</b>	
<i>Summary of Proceedings of the Symposium on Diesel Fuels (ASTM Special Technical Publication No. 167)</i>	1386
<b>Papers on Non-Destructive Testing</b>	
<i>The Ultrasonic Testing of Forging Ingots—R. N. Hafemeister (see ASTM BULLETIN No. 197, April, 1954, p. 52 (TP 80))</i>	
<i>Experiences with Ultrasonic Reflectoscope Inspection of Main Stem Welds of Seven Large Spheres—Levi Tarr (see ASTM BULLETIN No. 196, February 1954, p. 54 (TP 62); Discussion, p. 60 (TP 68))</i>	
<i>Surface Waves at Ultrasonic Frequencies—E. G. Cook and H. E. VanValkenburg (see ASTM BULLETIN No. 198, May 1954, p. 81 (TP 127))</i>	
<i>The Correlation of the Betatron with Other Forms of Non-Destructive Testing—H. B. Norris (see ASTM BULLETIN No. 197, April 1954, p. 56 (TP 84))</i>	
<i>Correlation of Gamma Radiography and Magnaflux Indications in the Inspection of Large Cast-Steel Connecting Rods—R. L. Thompson (see ASTM BULLETIN No. 197, April 1954, p. 58 (TP 86))</i>	
<i>Radiographic-Performance Correlation in Ordnance Design and Evaluation—D. T. O'Connor and E. L. Criscuolo (published in Special Reprint only)</i>	
<i>Flash X-ray Studies of Fuze Performance—E. L. Criscuolo and D. T. O'Connor (published in Special Reprint only)</i>	
<i>The Reliability of Fluoroscopic Inspection of Extruded Propellant—D. Polansky and D. T. O'Connor (published in Special Reprint only)</i>	
<i>Radiographic-Micrographic Examination of Aluminum Resistance Wedd—N. Modine and D. T. O'Connor (published in Special Reprint only)</i>	
<b>SUMMARY OF PROCEEDINGS OF WASHINGTON NATIONAL MEETING</b>	
<b>Symposium on Color of Transparent and Translucent Products</b>	
<i>Summary of Proceedings on Color of Transparent and Translucent Products</i>	1387
<b>Symposium on Design of Experiments</b>	
<i>Summary of Proceedings of the Symposium on Design of Experiments</i>	1387
<i>List of Special Technical Publications</i>	1388
<i>Author Index</i>	1389
<i>Subject Index</i>	1401
<i>Insert Plates</i>	
<i>Plates I and II. Potential Reactivity of Aggregate in Concrete. Report of Committee C-9</i>	358 and 364

